

CLAIMS

1. A packet processing device for processing packets in which variable length data is split and stored, comprising:

5 a header analyzing section for analyzing a header of an inputted packet and determining whether data stored in a payload is start data containing start information or other data;

a data extracting section for referring to an analysis result from the header analyzing section, and extracting the data from
10 the payload of the packet;

a buffer for storing the data extracted by the data extracting section;

a buffer controlling section for controlling a stored position and an accumulated data amount of the data in the buffer;

15 and

a start data identifying section for generating information for identifying the start data in the buffer, based on the analysis result from the header analyzing section and the control by the buffer controlling section.

20 2. The packet processing device according to claim 1, wherein the start data identifying section comprises:

a start position memory for retaining stored position information of the start data stored in the buffer; and

a number-of-starts counter for counting a number of the start
25 data stored in the buffer.

3. The packet processing device according to claim 2,
wherein the start position memory is a register for retaining
the stored position information.

4. The packet processing device according to claim 2,
5 wherein the start position memory is a memory, constructed
independently of the buffer, for retaining the stored position
information.

5. The packet processing device according to claim 2,
wherein the stored position information is a write address
10 in the buffer storing the start data.

6. The packet processing device according to claim 2,
wherein the stored position information is information
representing a position of the start data relative to first data
stored in the buffer.

15 7. The packet processing device according to any of
claims 2 to 6,

wherein the buffer controlling section compares the
accumulated data amount against a predetermined threshold amount
and, when the accumulated data amount becomes equal to or greater
20 than the threshold amount, outputs a predetermined notification
signal.

8. The packet processing device according to claim 7,
wherein, when detecting the predetermined notification
signal, the number-of-starts counter displays a number of the start
25 data contained in an amount of data corresponding to the threshold

amount.

9. The packet processing device according to any of claims 2 to 6,

wherein the buffer controlling section compares the number
5 in the number-of-starts counter against a predetermined threshold number and, when the number becomes equal to or greater than the threshold number, outputs a predetermined notification signal.

10. The packet processing device according to claim 7,
wherein the threshold number is a number of areas in the
10 start position memory which enables retention of the stored position information.

11. The packet processing device according to any of claims 2 to 10 further comprising:

a decode section for reading out data from the buffer with
15 a predetermined timing, obtaining stored position information and a count number from the start data identifying section, separating the start data contained in the data read out based on the stored position information and the count number into start information and data, and performing a decode process for the data read out
20 based on the start information.

12. The packet processing device according to claim 11,
wherein the buffer controlling section compares the accumulated data amount against a predetermined threshold amount, and, when the accumulated data amount becomes equal to or greater
25 than the threshold amount, outputs a predetermined notification

signal,

wherein, when detecting the predetermined notification signal, the number-of-starts counter displays a number of the start data contained in an amount of data corresponding to the threshold
5 amount, and

wherein the decode section reads out an amount of data corresponding to the threshold amount from the buffer at a timing of receiving the notification signal.

13. The packet processing device according to claim 11,
10 wherein the buffer controlling section compares the number in the number-of-starts counter against a predetermined threshold number, and, when the number becomes equal to or greater than the threshold number, outputs a predetermined notification signal, and

15 wherein the decode section reads out the data from the buffer at a timing of receiving the notification signal.

14. The packet processing device according to claim 1, wherein, when a transport stream packet under MPEG technique that stores variable-length PES data is inputted,

20 the header analyzing section analyzes a header of a TS packet in the inputted transport stream, and determines whether data stored in a payload is start PES data containing a PES header or other PES data,

the data extracting section refers to an analysis result
25 from the header analyzing section, and extracts PES data from the

payload of the TS packet,

the buffer stores the PES data extracted by the data extracting section,

the buffer controlling section controls a stored position
5 and an accumulated data amount of the PES data in the buffer, and

the start data identifying section generates information for identifying the start PES data in the buffer, based on the analysis result from the header analyzing section and the control by the buffer controlling section.

10 15. A packet processing method for processing packets in which variable length data is split and stored, comprising:

an analysis step of analyzing a header of an inputted packet, and determines whether data stored in a payload is start data containing start information or other data;

15 an extracting step of referring to an analysis result from the analyzing step, and extracting the data from the payload of the packet;

a step of storing the data extracted in the extracting step to a buffer;

20 a control step of controlling a stored position and an accumulated data amount of the data in the buffer; and

an identifying step of generating information for identifying the start data in the buffer, based on the analysis result from the analyzing step and the control from the control
25 step.

16. A decode processing method for decoding data stored in a buffer by using information for identifying start data containing start information that is included in data stored in the buffer, comprising:

5 a reading-out step of reading out data from the buffer with a predetermined timing;

a separating step of separating the start data contained in the data read out into start information and data based on information for identifying the start data; and

10 a decoding step of performing a decode process for the data read out based on the start information.

17. A computer readable program for a computer to execute a packet processing method for processing packets in which variable length data is split and stored,

15 wherein the program causes a computer to execute:

an analysis step of analyzing a header of an inputted packet, and determines whether data stored in a payload is start data containing start information or other data;

20 an extracting step of referring to an analysis result from the analyzing step, and extracting the data from the payload of the packet;

a step of storing the data extracted in the extracting step to a buffer;

25 a control step of controlling a stored position and an accumulated data amount of the data in the buffer; and

an identifying step of generating information for identifying the start data in the buffer, based on the analysis result from the analyzing step and the control from the control step.

5 18. A computer readable program for a computer to execute a decode processing method for decoding data stored in a buffer by using information for identifying start data containing start information that is included in data stored in the buffer,

 wherein the program causes the computer to execute:

10 a reading-out step of reading out data from the buffer with a predetermined timing;

 a separating step of separating the start data contained in the data read out into start information and data based on information for identifying the start data; and

15 a decoding step of performing a decode process for the data read out based on the start information.

 19. A medium having recorded thereon a computer readable program for a computer to execute a packet processing method for processing packets in which variable length data is split and
20 stored,

 wherein the program recorded in the medium causes the computer to execute:

 an analysis step of analyzing a header of an inputted packet, and determining whether data stored in a payload is start data
25 containing start information or other data;

an extracting step of referring to an analysis result from the analyzing step, and extracting the data from the payload of the packet;

5 a step of storing the data extracted in the extracting step to a buffer;

a control step of controlling a stored position and an accumulated data amount of the data in the buffer; and

10 an identifying step of generating information for identifying the start data in the buffer, based on the analysis result from the analyzing step and the control from the control step.

20. A medium having recorded thereon a computer readable program for a computer to execute a decode processing method for decoding data stored in a buffer by using information for
15 identifying start data containing start information that is included in data stored in the buffer,

wherein the program recorded in the medium causes a computer to execute:

20 a reading-out step of reading out data from the buffer with a predetermined timing;

a separating step of separating the start data contained in the data read out into start information and data based on information for identifying the start data; and

25 a decoding step of performing a decode process for the data read out based on the start information.

21. An integrated circuit to be incorporated into a device which processes packets in which variable length data is split and stored,

wherein the device comprises a buffer for storing data, and

5 wherein the integrated circuit integrates circuitry functioning as:

a header analyzing section for analyzing a header of an inputted packet, and determining whether data stored in a payload is start data containing start information or other data;

10 a data extracting section for referring to an analysis result from the header analyzing section, and extracting the data from the payload in the packet;

a buffer for storing the data extracted by the data extracting section;

15 a buffer controlling section for controlling a stored position and an accumulated data amount of the data in the buffer; and

a start data identifying section for generating information for identifying the start data in the buffer, based on the analysis result from the header analyzing section and the control by the
20 buffer controlling section.

22. The integrated circuit according to claim 21 further integrates circuitry functioning as

a decode section for reading out data from the buffer with
25 a predetermined timing, obtaining information for identifying the

start data from the start data identifying section, separating the start data contained in the data read out based on the stored position information and the count number into start information and data, and performing a decode process for the data read out
5 based on the start information.